

SEQUENCE LISTING

<110> SUEISHI, Katsuo  
YONEMITSU, Yoshikazu  
SHIKADA, Yasunori  
TSUTSUMI, Norifumi  
HASEGAWA, Mamoru

<120> Methods for suppressing tumor proliferation

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<140> US 10/598,947

<141> 2006-09-15

<150> PCT/JP2005/004485

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<170> PatentIn version 3.3

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gga gat ttg gtc aac tat ttg cat aag aat agg gat agc ttc ctg agc Gly Asp Leu Val Asn Tyr Leu His Lys Asn Arg Asp Ser Phe Leu Ser 680 685 690 695	2479
cac cac cca gag aag cca aag aaa gag ctg gat atc ttt gga ttg aac His His Pro Glu Lys Pro Lys Glu Leu Asp Ile Phe Gly Leu Asn 700 705 710	2527
cct gct gat gaa agc aca cgg agc tat gtt att tta tct ttt gaa aac	2575

Pro Ala Asp Glu Ser Thr Arg Ser Tyr Val Ile Leu Ser Phe Glu Asn			
715	720	725	
aat ggt gac tac atg gac atg aag cag cag gct gat act aca cag tat gtc			2623
Asn Gly Asp Tyr Met Asp Met Lys Gln Ala Asp Thr Thr Gln Tyr Val			
730	735	740	
ccc atg cta gaa agg aaa gag gtt tct aaa tat tcc gac atc cag aga			2671
Pro Met Leu Glu Arg Lys Glu Val Ser Lys Tyr Ser Asp Ile Gln Arg			
745	750	755	
tca ctc tat gat cgt cca gcc tca tat aag aag aaa tct atg tta gac			2719
Ser Leu Tyr Asp Arg Pro Ala Ser Tyr Lys Lys Ser Met Leu Asp			
760	765	770	775
tca gaa gtc aaa aac ctc ctt tca gat gat aac tca gaa ggc ctt act			2767
Ser Glu Val Lys Asn Leu Leu Ser Asp Asp Asn Ser Glu Gly Leu Thr			
780	785	790	
tta ttg gat ttg ttg agc ttc acc tat caa gtt gcc cga gga atg gag			2815
Leu Leu Asp Leu Leu Ser Phe Thr Tyr Gln Val Ala Arg Gly Met Glu			
795	800	805	
ttt ttg gct tca aaa aat tgt gtc cac cgt gat ctg gct gct cgc aac			2863
Phe Leu Ala Ser Lys Asn Cys Val His Arg Asp Leu Ala Ala Arg Asn			
810	815	820	
gtc ctc ctg gca caa gga aaa att gtg aag atc tgt gac ttt ggc ctg			2911
Val Leu Ala Gln Gly Lys Ile Val Lys Ile Cys Asp Phe Gly Leu			
825	830	835	
gcc aga gac atc atg cat gat tcg aac tat gtg tcg aaa ggc agt acc			2959
Ala Arg Asp Ile Met His Asp Ser Asn Tyr Val Ser Lys Gly Ser Thr			
840	845	850	855
ttt ctg ccc gtg aag tgg atg gct cct gag agc atc ttt gac aac ctc			3007
Phe Leu Pro Val Lys Trp Met Ala Pro Glu Ser Ile Phe Asp Asn Leu			
860	865	870	
tac acc aca ctg agt gat gtc tgg tct tat ggc att ctg ctc tgg gag			3055
Tyr Thr Leu Ser Asp Val Trp Ser Tyr Gly Ile Leu Leu Trp Glu			
875	880	885	
atc ttt tcc ctt ggt ggc acc cct tac ccc ggc atg atg gtg gat tct			3103
Ile Phe Ser Leu Gly Gly Thr Pro Tyr Pro Gly Met Met Val Asp Ser			
890	895	900	
act ttc tac aat aag atc aag agt ggg tac cgg atg gcc aag cct gac			3151
Thr Phe Tyr Asn Lys Ile Lys Ser Gly Tyr Arg Met Ala Lys Pro Asp			
905	910	915	
cac gct acc agt gaa gtc tac gag atc atg gtg aaa tgc tgg aac agt			3199
His Ala Thr Ser Glu Val Tyr Glu Ile Met Val Lys Cys Trp Asn Ser			
920	925	930	935
gag ccg gag aag aga ccc tcc ttt tac cac ctg agt gag att gtg gag			3247
Glu Pro Glu Lys Arg Pro Ser Phe Tyr His Leu Ser Glu Ile Val Glu			

940	945	950								
aat ctg ctg cct gga caa tat aaa aag agt tat gaa aaa att cac ctg Asn Leu Leu Pro Gly Gln Tyr Lys Lys Ser Tyr Glu Lys Ile His Leu 955	960	965	3295							
gac ttc ctg aag agt gac cat cct gct gtg gca cgc atg cgt gtg gac Asp Phe Leu Lys Ser Asp His Pro Ala Val Ala Arg Met Arg Val Asp 970	975	980	3343							
tca gac aat gca tac att ggt gtc acc tac aaa aac gag gaa gac aag Ser Asp Asn Ala Tyr Ile Gly Val Thr Tyr Lys Asn Glu Glu Asp Lys 985	990	995	3391							
ctg aag gac tgg gag ggt ggt ctg gat gag cag aga ctg agc gct Leu Lys Asp Trp Glu Gly Gly Leu Asp Glu Gln Arg Leu Ser Ala 1000	1005	1010	3436							
gac agt ggc tac atc att cct ctg cct gac att gac cct gtc cct Asp Ser Gly Tyr Ile Ile Pro Leu Pro Asp Ile Asp Pro Val Pro 1015	1020	1025	3481							
gag gag gag gac ctg ggc aag agg aac aga cac agc tcg cag acc Glu Glu Glu Asp Leu Gly Lys Arg Asn Arg His Ser Ser Gln Thr 1030	1035	1040	3526							
tct gaa gag agt gcc att gag acg ggt tcc agc agt tcc acc ttc Ser Glu Glu Ser Ala Ile Glu Thr Gly Ser Ser Ser Ser Thr Phe 1045	1050	1055	3571							
atc aag aga gag gac gag acc att gaa gac atc gac atg atg gac Ile Lys Arg Glu Asp Glu Thr Ile Glu Asp Ile Asp Met Met Asp 1060	1065	1070	3616							
gac atc ggc ata gac tct tca gac ctg gtg gaa gac agc ttc ctg Asp Ile Gly Ile Asp Ser Ser Asp Leu Val Glu Asp Ser Phe Leu 1075	1080	1085	3661							
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tcctaacaaa	tgctcccacc	tgaatttgc	tatgactgca	tttgtgggtg	tgtgtgtgtt	6061
ttcagcaaat	tccagatttgc	tttcctttgc	gcctcctgca	aagtctccag	aagaaaattt	6121
gccaatctt	cctactttct	attttatgca	tgacaatcaa	agccggcctg	agaaacacta	6181
tttgcactt	tttaaacgt	tagtgcgtc	cttaaaatgt	ggtctgccaa	tctgtacaaa	6241
atggtcctat	ttttgtgaag	agggacataa	gataaaatga	tgttatacat	caatatgtat	6301
atatgtattt	ctatataagac	ttggagaata	ctgccaacac	atttatgaca	agctgtatca	6361
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aatgtattac	gaatgcccct	gttcatgttt	ttgtttaaa	acgtgtaaat	gaagatctt	6601
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 <212> PRT  
 <213> Homo sapiens

<400> 6

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Gly	Leu	Ser	Leu	Ile	Leu	Cys	Gln	Leu	Ser	Leu	Pro	Ser	Ile	Leu	Pro
20															30

Asn	Glu	Asn	Glu	Lys	Val	Val	Gln	Leu	Asn	Ser	Ser	Phe	Ser	Leu	Arg
35															45

Cys	Phe	Gly	Glu	Ser	Glu	Val	Ser	Trp	Gln	Tyr	Pro	Met	Ser	Glu	Glu
50															60

Glu	Ser	Ser	Asp	Val	Glu	Ile	Arg	Asn	Glu	Glu	Asn	Asn	Ser	Gly	Leu
65															80

Phe	Val	Thr	Val	Leu	Glu	Val	Ser	Ser	Ala	Ser	Ala	Ala	His	Thr	Gly
85															95

Leu	Tyr	Thr	Cys	Tyr	Tyr	Asn	His	Thr	Gln	Thr	Glu	Glu	Asn	Glu	Leu
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

100 105 110

Glu Gly Arg His Ile Tyr Ile Tyr Val Pro Asp Pro Asp Val Ala Phe  
115 120 125

Val Pro Leu Gly Met Thr Asp Tyr Leu Val Ile Val Glu Asp Asp Asp  
130 135 140

Ser Ala Ile Ile Pro Cys Arg Thr Thr Asp Pro Glu Thr Pro Val Thr  
145 150 155 160

Leu His Asn Ser Glu Gly Val Val Pro Ala Ser Tyr Asp Ser Arg Gln  
165 170 175

Gly Phe Asn Gly Thr Phe Thr Val Gly Pro Tyr Ile Cys Glu Ala Thr  
180 185 190

Val Lys Gly Lys Phe Gln Thr Ile Pro Phe Asn Val Tyr Ala Leu  
195 200 205

Lys Ala Thr Ser Glu Leu Asp Leu Glu Met Glu Ala Leu Lys Thr Val  
210 215 220

Tyr Lys Ser Gly Glu Thr Ile Val Val Thr Cys Ala Val Phe Asn Asn  
225 230 235 240

Glu Val Val Asp Leu Gln Trp Thr Tyr Pro Gly Glu Val Lys Gly Lys  
245 250 255

Gly Ile Thr Met Leu Glu Glu Ile Lys Val Pro Ser Ile Lys Leu Val  
260 265 270

Tyr Thr Leu Thr Val Pro Glu Ala Thr Val Lys Asp Ser Gly Asp Tyr  
275 280 285

Glu Cys Ala Ala Arg Gln Ala Thr Arg Glu Val Lys Glu Met Lys Lys  
290 295 300

Val Thr Ile Ser Val His Glu Lys Gly Phe Ile Glu Ile Lys Pro Thr  
305 310 315 320

Phe Ser Gln Leu Glu Ala Val Asn Leu His Glu Val Lys His Phe Val  
325 330 335

Val Glu Val Arg Ala Tyr Pro Pro Pro Arg Ile Ser Trp Leu Lys Asn  
340 345 350

Asn Leu Thr Leu Ile Glu Asn Leu Thr Glu Ile Thr Thr Asp Val Glu  
355 360 365

Lys Ile Gln Glu Ile Arg Tyr Arg Ser Lys Leu Lys Leu Ile Arg Ala  
370 375 380

Lys Glu Glu Asp Ser Gly His Tyr Thr Ile Val Ala Gln Asn Glu Asp  
385 390 395 400

Ala Val Lys Ser Tyr Thr Phe Glu Leu Leu Thr Gln Val Pro Ser Ser  
405 410 415

Ile Leu Asp Leu Val Asp Asp His His Gly Ser Thr Gly Gly Gln Thr  
420 425 430

Val Arg Cys Thr Ala Glu Gly Thr Pro Leu Pro Asp Ile Glu Trp Met  
435 440 445

Ile Cys Lys Asp Ile Lys Lys Cys Asn Asn Glu Thr Ser Trp Thr Ile  
450 455 460

Leu Ala Asn Asn Val Ser Asn Ile Ile Thr Glu Ile His Ser Arg Asp  
465 470 475 480

Arg Ser Thr Val Glu Gly Arg Val Thr Phe Ala Lys Val Glu Glu Thr  
485 490 495

Ile Ala Val Arg Cys Leu Ala Lys Asn Leu Leu Gly Ala Glu Asn Arg  
500 505 510

Glu Leu Lys Leu Val Ala Pro Thr Leu Arg Ser Glu Leu Thr Val Ala  
515 520 525

Ala Ala Val Leu Val Leu Val Ile Val Ile Ile Ser Leu Ile Val  
530 535 540

Leu Val Val Ile Trp Lys Gln Lys Pro Arg Tyr Glu Ile Arg Trp Arg  
545 550 555 560

Val Ile Glu Ser Ile Ser Pro Asp Gly His Glu Tyr Ile Tyr Val Asp  
565 570 575

Pro Met Gln Leu Pro Tyr Asp Ser Arg Trp Glu Phe Pro Arg Asp Gly  
580 585 590

Leu Val Leu Gly Arg Val Leu Gly Ser Gly Ala Phe Gly Lys Val Val  
595 600 605

Glu Gly Thr Ala Tyr Gly Leu Ser Arg Ser Gln Pro Val Met Lys Val  
610 615 620

Ala Val Lys Met Leu Lys Pro Thr Ala Arg Ser Ser Glu Lys Gln Ala  
625 630 635 640

Leu Met Ser Glu Leu Lys Ile Met Thr His Leu Gly Pro His Leu Asn  
645 650 655

Ile Val Asn Leu Leu Gly Ala Cys Thr Lys Ser Gly Pro Ile Tyr Ile  
660 665 670

Ile Thr Glu Tyr Cys Phe Tyr Gly Asp Leu Val Asn Tyr Leu His Lys  
675 680 685

Asn Arg Asp Ser Phe Leu Ser His His Pro Glu Lys Pro Lys Lys Glu  
690 695 700

Leu Asp Ile Phe Gly Leu Asn Pro Ala Asp Glu Ser Thr Arg Ser Tyr  
705 710 715 720

Val Ile Leu Ser Phe Glu Asn Asn Gly Asp Tyr Met Asp Met Lys Gln  
725 730 735

Ala Asp Thr Thr Gln Tyr Val Pro Met Leu Glu Arg Lys Glu Val Ser  
740 745 750

Lys Tyr Ser Asp Ile Gln Arg Ser Leu Tyr Asp Arg Pro Ala Ser Tyr  
755 760 765

Lys Lys Lys Ser Met Leu Asp Ser Glu Val Lys Asn Leu Leu Ser Asp  
770 775 780

Asp Asn Ser Glu Gly Leu Thr Leu Leu Asp Leu Leu Ser Phe Thr Tyr  
785 790 795 800

Gln Val Ala Arg Gly Met Glu Phe Leu Ala Ser Lys Asn Cys Val His  
805 810 815

Arg Asp Leu Ala Ala Arg Asn Val Leu Leu Ala Gln Gly Lys Ile Val  
820 825 830

Lys Ile Cys Asp Phe Gly Leu Ala Arg Asp Ile Met His Asp Ser Asn  
835 840 845

Tyr Val Ser Lys Gly Ser Thr Phe Leu Pro Val Lys Trp Met Ala Pro  
850 855 860

Glu Ser Ile Phe Asp Asn Leu Tyr Thr Leu Ser Asp Val Trp Ser  
865 870 875 880

Tyr Gly Ile Leu Leu Trp Glu Ile Phe Ser Leu Gly Gly Thr Pro Tyr  
885 890 895

Pro Gly Met Met Val Asp Ser Thr Phe Tyr Asn Lys Ile Lys Ser Gly  
900 905 910

Tyr Arg Met Ala Lys Pro Asp His Ala Thr Ser Glu Val Tyr Glu Ile  
915 920 925

Met Val Lys Cys Trp Asn Ser Glu Pro Glu Lys Arg Pro Ser Phe Tyr  
930 935 940

His Leu Ser Glu Ile Val Glu Asn Leu Leu Pro Gly Gln Tyr Lys Lys  
945 950 955 960

Ser Tyr Glu Lys Ile His Leu Asp Phe Leu Lys Ser Asp His Pro Ala  
965 970 975

Val Ala Arg Met Arg Val Asp Ser Asp Asn Ala Tyr Ile Gly Val Thr  
980 985 990

Tyr Lys Asn Glu Glu Asp Lys Leu Lys Asp Trp Glu Gly Gly Leu Asp  
995 1000 1005

Glu Gln Arg Leu Ser Ala Asp Ser Gly Tyr Ile Ile Pro Leu Pro

1010	1015	1020	
Asp Ile Asp Pro Val Pro Glu Glu Glu Asp Leu Gly Lys Arg Asn			
1025	1030	1035	
Arg His Ser Ser Gln Thr Ser Glu Glu Ser Ala Ile Glu Thr Gly			
1040	1045	1050	
Ser Ser Ser Ser Thr Phe Ile Lys Arg Glu Asp Glu Thr Ile Glu			
1055	1060	1065	
Asp Ile Asp Met Met Asp Asp Ile Gly Ile Asp Ser Ser Asp Leu			
1070	1075	1080	
Val Glu Asp Ser Phe Leu			
1085			
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Met Gly Thr Ser His Pro Ala Phe Leu Val Leu Gly Cys Leu Leu Thr			
1	5	10	15
ggg ctg agc cta atc ctc tgc cag ctt tca tta ccc tct atc ctt cca			96
Gly Leu Ser Leu Ile Leu Cys Gln Leu Ser Leu Pro Ser Ile Leu Pro			
20	25	30	
aat gaa aat gaa aag gtt gtg cag ctg aat tca tcc ttt tct ctg aga			144
Asn Glu Asn Glu Lys Val Val Gln Leu Asn Ser Ser Phe Ser Leu Arg			
35	40	45	
tgc ttt ggg gag agt gaa gtg agc tgg cag tac ccc atg tct gaa gaa			192
Cys Phe Gly Glu Ser Glu Val Ser Trp Gln Tyr Pro Met Ser Glu Glu			
50	55	60	
gag agc tcc gat gtg gaa atc aga aat gaa gaa aac aac agc ggc ctt			240
Glu Ser Ser Asp Val Glu Ile Arg Asn Glu Glu Asn Asn Ser Gly Leu			
65	70	75	80

ttt gtg acg gtc ttg gaa gtg agc agt gcc tcg gcg gcc cac aca ggg Phe Val Thr Val Leu Glu Val Ser Ser Ala Ser Ala Ala His Thr Gly 85 90 95	288
ttg tac act tgc tat tac aac cac act cag aca gaa gag aat gag ctt Leu Tyr Thr Cys Tyr Tyr Asn His Thr Gln Thr Glu Glu Asn Glu Leu 100 105 110	336
gaa ggc agg cac att tac atc tat gtg cca gac cca gat gta gcc ttt Glu Gly Arg His Ile Tyr Ile Tyr Val Pro Asp Pro Asp Val Ala Phe 115 120 125	384
gta cct cta gga atg acg gat tat tta gtc atc gtg gag gat gat gat Val Pro Leu Gly Met Thr Asp Tyr Leu Val Ile Val Glu Asp Asp Asp 130 135 140	432
tct gcc att ata cct tgt cgc aca act gat ccc gag act cct gta acc Ser Ala Ile Ile Pro Cys Arg Thr Thr Asp Pro Glu Thr Pro Val Thr 145 150 155 160	480
tta cac aac agt gag ggg gtg gta cct gcc tcc tac gac agc aga cag Leu His Asn Ser Glu Gly Val Val Pro Ala Ser Tyr Asp Ser Arg Gln 165 170 175	528
ggc ttt aat ggg acc ttc act gta ggg ccc tat atc tgt gag gcc acc Gly Phe Asn Gly Thr Phe Thr Val Gly Pro Tyr Ile Cys Glu Ala Thr 180 185 190	576
gtc aaa gga aag aag ttc cag acc atc cca ttt aat gtt tat gct tta Val Lys Gly Lys Phe Gln Thr Ile Pro Phe Asn Val Tyr Ala Leu 195 200 205	624
aaa gca aca tca gag ctg gat cta gaa atg gaa gct ctt aaa acc gtg Lys Ala Thr Ser Glu Leu Asp Leu Glu Met Glu Ala Leu Lys Thr Val 210 215 220	672
tat aag tca ggg gaa acg att gtg gtc acc tgt gct gtt ttt aac aat Tyr Lys Ser Gly Glu Thr Ile Val Val Thr Cys Ala Val Phe Asn Asn 225 230 235 240	720
gag gtg gtt gac ctt caa tgg act tac cct gga gaa gtg aaa ggc aaa Glu Val Val Asp Leu Gln Trp Thr Tyr Pro Gly Glu Val Lys Gly Lys 245 250 255	768
ggc atc aca atg ctg gaa gaa atc aaa gtc cca tcc atc aaa ttg gtg Gly Ile Thr Met Leu Glu Glu Ile Lys Val Pro Ser Ile Lys Leu Val 260 265 270	816
tac act ttg acg gtc ccc gag gcc acg gtg aaa gac agt gga gat tac Tyr Thr Leu Thr Val Pro Glu Ala Thr Val Lys Asp Ser Gly Asp Tyr 275 280 285	864
gaa tgt gct gcc cgc cag gct acc agg gag gtc aaa gaa atg aag aaa Glu Cys Ala Ala Arg Gln Ala Thr Arg Glu Val Lys Glu Met Lys Lys 290 295 300	912
gtc act att tct gtc cat gag aaa ggt ttc att gaa atc aaa ccc acc	960

Val Thr Ile Ser Val His Glu Lys Gly Phe Ile Glu Ile Lys Pro Thr			
305	310	315	320
ttc agc cag ttg gaa gct gtc aac ctg cat gaa gtc aaa cat ttt gtt			1008
Phe Ser Gln Leu Glu Ala Val Asn Leu His Glu Val Lys His Phe Val			
325	330	335	
gta gag gtg cggtt gcc tac cca cct ccc agg ata tcc tgg ctg aaa aac			1056
Val Glu Val Arg Ala Tyr Pro Pro Arg Ile Ser Trp Leu Lys Asn			
340	345	350	
aat ctg act ctg att gaa aat ctc act gag atc acc act gat gtg gaa			1104
Asn Leu Thr Leu Ile Glu Asn Leu Thr Glu Ile Thr Thr Asp Val Glu			
355	360	365	
aag att cag gaa ata agg tat cga agc aaa tta aag ctg atc cgt gct			1152
Lys Ile Gln Glu Ile Arg Tyr Arg Ser Lys Leu Lys Leu Ile Arg Ala			
370	375	380	
aag gaa gaa gac agt ggc cat tat act att gta gct caa aat gaa gat			1200
Lys Glu Glu Asp Ser Gly His Tyr Thr Ile Val Ala Gln Asn Glu Asp			
385	390	395	400
gct gtg aag agc tat act ttt gaa ctg tta act caa gtt cct tca tcc			1248
Ala Val Lys Ser Tyr Thr Phe Glu Leu Leu Thr Gln Val Pro Ser Ser			
405	410	415	
att ctg gac ttg gtc gat gat cac cat ggc tca act ggg gga cag acg			1296
Ile Leu Asp Leu Val Asp Asp His His Gly Ser Thr Gly Gly Gln Thr			
420	425	430	
gtg agg tgc aca gct gaa ggc acg ccg ctt cct gat att gag tgg atg			1344
Val Arg Cys Thr Ala Glu Gly Thr Pro Leu Pro Asp Ile Glu Trp Met			
435	440	445	
ata tgc aaa gat att aag aaa tgt aat aat gaa act tcc tgg act att			1392
Ile Cys Lys Asp Ile Lys Lys Cys Asn Asn Glu Thr Ser Trp Thr Ile			
450	455	460	
ttg gcc aac aat gtc tca aac atc atc acg gag atc cac tcc cga gac			1440
Leu Ala Asn Asn Val Ser Asn Ile Ile Thr Glu Ile His Ser Arg Asp			
465	470	475	480
agg agt acc gtg gag ggc cgt gtg act ttc gcc aaa gtg gag gag acc			1488
Arg Ser Thr Val Glu Gly Arg Val Thr Phe Ala Lys Val Glu Glu Thr			
485	490	495	
atc gcc gtg cga tgc ctg gct aag aat ctc ctt gga gct gag aac cga			1536
Ile Ala Val Arg Cys Leu Ala Lys Asn Leu Leu Gly Ala Glu Asn Arg			
500	505	510	
gag ctg aag ctg gtg gct ccc acc ctg cgt tct gaa gac tac aag gac			1584
Glu Leu Lys Leu Val Ala Pro Thr Leu Arg Ser Glu Asp Tyr Lys Asp			
515	520	525	
gac gat gac aag			1596
Asp Asp Asp Lys			

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Gly Leu Ser Leu Ile Leu Cys Gln Leu Ser Leu Pro Ser Ile Leu Pro  
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Asn Glu Asn Glu Lys Val Val Gln Leu Asn Ser Ser Phe Ser Leu Arg  
35 40 45

Cys Phe Gly Glu Ser Glu Val Ser Trp Gln Tyr Pro Met Ser Glu Glu  
50 55 60

Glu Ser Ser Asp Val Glu Ile Arg Asn Glu Glu Asn Asn Ser Gly Leu  
65 70 75 80

Phe Val Thr Val Leu Glu Val Ser Ser Ala Ser Ala Ala His Thr Gly  
85 90 95

Leu Tyr Thr Cys Tyr Tyr Asn His Thr Gln Thr Glu Glu Asn Glu Leu  
100 105 110

Glu Gly Arg His Ile Tyr Ile Tyr Val Pro Asp Pro Asp Val Ala Phe  
115 120 125

Val Pro Leu Gly Met Thr Asp Tyr Leu Val Ile Val Glu Asp Asp Asp  
130 135 140

Ser Ala Ile Ile Pro Cys Arg Thr Thr Asp Pro Glu Thr Pro Val Thr  
145 150 155 160

Leu His Asn Ser Glu Gly Val Val Pro Ala Ser Tyr Asp Ser Arg Gln  
165 170 175

Gly Phe Asn Gly Thr Phe Thr Val Gly Pro Tyr Ile Cys Glu Ala Thr  
180 185 190

Val Lys Gly Lys Lys Phe Gln Thr Ile Pro Phe Asn Val Tyr Ala Leu  
195 200 205

Lys Ala Thr Ser Glu Leu Asp Leu Glu Met Glu Ala Leu Lys Thr Val  
210 215 220

Tyr Lys Ser Gly Glu Thr Ile Val Val Thr Cys Ala Val Phe Asn Asn  
225 230 235 240

Glu Val Val Asp Leu Gln Trp Thr Tyr Pro Gly Glu Val Lys Gly Lys  
245 250 255

Gly Ile Thr Met Leu Glu Glu Ile Lys Val Pro Ser Ile Lys Leu Val  
260 265 270

Tyr Thr Leu Thr Val Pro Glu Ala Thr Val Lys Asp Ser Gly Asp Tyr  
275 280 285

Glu Cys Ala Ala Arg Gln Ala Thr Arg Glu Val Lys Glu Met Lys Lys  
290 295 300

Val Thr Ile Ser Val His Glu Lys Gly Phe Ile Glu Ile Lys Pro Thr  
305 310 315 320

Phe Ser Gln Leu Glu Ala Val Asn Leu His Glu Val Lys His Phe Val  
325 330 335

Val Glu Val Arg Ala Tyr Pro Pro Arg Ile Ser Trp Leu Lys Asn  
340 345 350

Asn Leu Thr Leu Ile Glu Asn Leu Thr Glu Ile Thr Thr Asp Val Glu  
355 360 365

Lys Ile Gln Glu Ile Arg Tyr Arg Ser Lys Leu Lys Leu Ile Arg Ala  
370 375 380

Lys Glu Glu Asp Ser Gly His Tyr Thr Ile Val Ala Gln Asn Glu Asp  
385 390 395 400

Ala Val Lys Ser Tyr Thr Phe Glu Leu Leu Thr Gln Val Pro Ser Ser

405

410

415

Ile Leu Asp Leu Val Asp Asp His His Gly Ser Thr Gly Gly Gln Thr  
420 425 430

Val Arg Cys Thr Ala Glu Gly Thr Pro Leu Pro Asp Ile Glu Trp Met  
435 440 445

Ile Cys Lys Asp Ile Lys Lys Cys Asn Asn Glu Thr Ser Trp Thr Ile  
450 455 460

Leu Ala Asn Asn Val Ser Asn Ile Ile Thr Glu Ile His Ser Arg Asp  
465 470 475 480

Arg Ser Thr Val Glu Gly Arg Val Thr Phe Ala Lys Val Glu Glu Thr  
485 490 495

Ile Ala Val Arg Cys Leu Ala Lys Asn Leu Leu Gly Ala Glu Asn Arg  
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Glu Leu Lys Leu Val Ala Pro Thr Leu Arg Ser Glu Asp Tyr Lys Asp  
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Asp Asp Asp Lys  
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50

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